

OIS - Series

Power-Thick Film Resistors

FEATURES

- Resistance from 0,5Ω
- Temperature Coefficients ±100ppm/°C
- Resistance Tolerances to ±5%
- Power up to 1000Watts (cooled)
- ISOTOP Design
- Low Inductance
- RoHS compliant



RATED VALUES (IEC 60115-1)

Resistance Range	Ω	0,5Ω to 1MΩ (E24)
Resistance Tolerance	%	5%
Temperature Coefficient	ppm/°C	±100 > 1Ω; ±200 < 1Ω
Operating Voltage (U _{max})	V	√(P x R) ¹
Capacitance	F	25pF (Resistor terminal - Terminal)
Inductance	H	108nH (Resistor terminal - Terminal)
Insulation Resistance (R _{ins})	Ω	>1G
Operating Temperature Range (T)	°C	-55°C bis 155°C

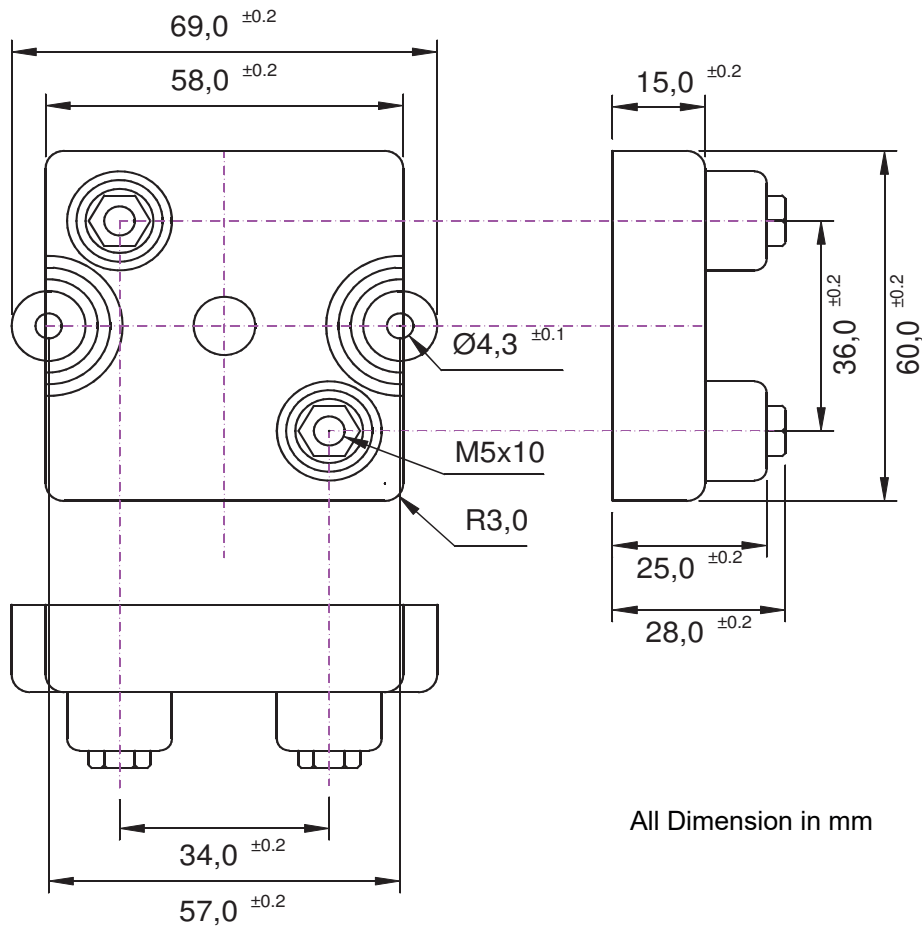
Type	U _{max} (V)	Power P25 (W)	Power P70 (W)	Heat Resistance (°C/W)	Tolerance- /Resistance Range (±5% / Ω) E24 ²
OIS0800	5000 ¹	800	800	0,1	0R5 - 1M0
OIS1000	5000 ¹	1000	954	0,1	0R5 - 1M0

¹Restriction to max. 5000V

²Additional possible values 2.0 and 5.0

PERFORMANCE

IEC 60115-1	Test	Conditions of Test	Specification ΔR
4.23	Moisture Resistance	+60°C, 90-95% r.F., Rated Voltage and power 0,1W, 1000h	±(1,0% R +0,05Ω)
4.19	Temperature Change	-55°C 30 Minutes, +155° 30 Minutes, 5 Cycles	±(0,20% R +0,05Ω)
4.6	Insulation Voltage	U _{ins} 8000VAC, 60 Seconds	>1GΩ
4.13	Short Time Overload	< 1,2x Rated Voltage U _{max} , 5 Seconds	±(0,25% R +0,05Ω)
4.25	Endurance	Nominal Power, 1000h	±(0,4% R +0,05Ω)
4.22	Vibration	Frequency 10Hz - 54Hz, 10 Cycles in x,y,z Direction	±(0,25% R +0,05Ω)



- Mounting instructions: Resistor and cooling surface (body) must be free of grease and contamination. Cooling surface or heat sink should not have unevennesses (max 0.05mm / 50mm²). For better heat dissipation it is recommended to use suitable thermal compounds. The tightening torque for fixing the resistor to the heat sink must be selected according to the thermal paste used.

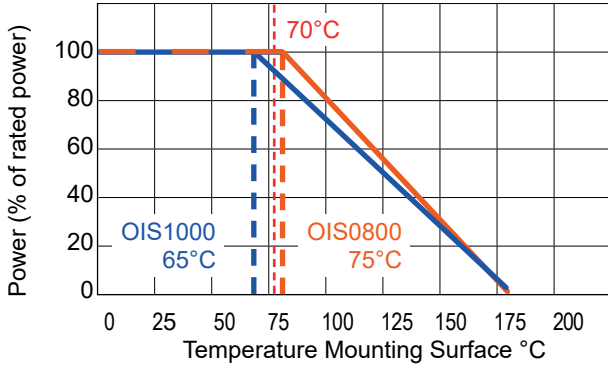
CONSTRUCTION

Resistance Material	Ruthenium-based Thick Film Layer
Housing	Insulation-proof Plastic
Terminals	Screw Terminals, Screw M5 x 10, Torque 4,8Nm max.
Thermal Flange Plate	Nickel Plated Copper
Flammability	UL94V-0 for Resistor Body
Weight	app. 120 Grams

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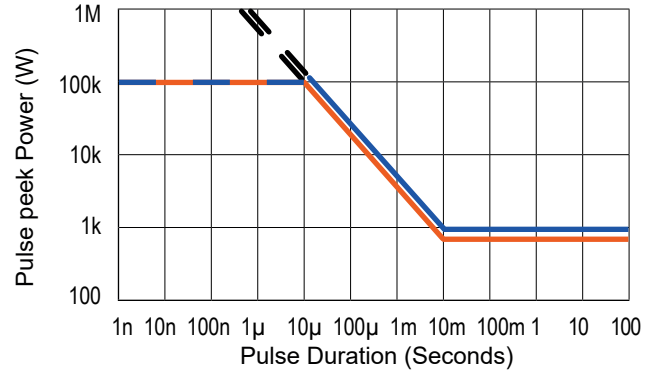
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POWER DERATING CURVE



- The max. permissible surface temperature must not exceed 125 ° C. This must be taken into account in the cooling surface dimensioning.

PULSE ENERGY DURABILITY



- OIS0800
- OIS1000
- — expected value

The pulse test was performed with a pulse repeat rate of 100Hz. The specifications are typical test values, they do not describe any specification.

CALCULATION / DIMENSIONING OF A SUITABLE COOLING

The power resistors of the OIS series must be combined with a sufficiently dimensioned cooling. For OIS, active water cooling is advised. It is recommended that these power resistors are not constantly operated at maximum continuous load. Operating at approx. 80 - 85% of the rated power ensures the stability of the resistance tolerance, the nominal resistance values and the endurance especially under load changing conditions.

Calculation of the heat resistance of the heat sink:

- P_{θ} - Power of the Resistor in Watts
- T_{max} - Maximum Temperature of the Resistor
- $R_{\theta JC}$ - Thermal Resistance of the Resistor in K/W
- $R_{\theta S}$ - Thermal Resistance the Heat Sink in K/W
- T_A - Ambient Temperature

$$R_{\theta S} = \frac{T_{max} - (P_{\theta} \times R_{\theta JC}) - T_A}{P_{\theta}}$$

ORDERING INFORMATION

OIS0800 100R00 0,1% TK100 (OIS800; 100Ω; ±0,1%; ±100ppm/°C)

Type	Special	Resistance Value	Tolerance	Temperature Coefficient	Power	Options	Packaging
OIS0800	- XXX	0R5000 100R00 10K000 1M0000	5%	TK100 TK200	-	-	-